

a container which is stable in respect of shape and which is disposed in the casing; and

a collapsible bag disposed in the container and containing the liquid, wherein the stiff outer casing includes a bottom provided with an opening, and wherein the container includes an opening and a stopper, the stopper including an insertion connection portion which forms a sealingly closing, centered guide means for the dispensing connection portion, and

wherein the stopper is non-releasably connected by the outer casing to the container, and

wherein the cartridge is releasably connected to the connection portion on the upper portion of the dispensing device.

2 40. A cartridge according to claim 39, wherein the cartridge is releasably connected to the connection portion by means of a plug connection.

3 41. A cartridge according to claim 39, wherein the cartridge is releasably connected to the connection portion by means of a screw connection or a bayonet connection.

sub B2 4 42. A cartridge according to claim 39, wherein the stopper is connected to the container in force-locking and positively locking relationship by means of a snap connection.

5 43. A cartridge according to claim 39, wherein the stopper comprising a thermoplastic material is non-releasably connected to the container which also comprises a thermoplastic material by means of a welded joint with merging of the materials.

4 44. A cartridge according to claim 39, further comprising a funnel-shaped centered guide means including guide ribs disposed within the insertion connection portion of the stopper.

7 45. A cartridge according to claim 39, wherein the sealingly closing guide means for the dispensing connection portion comprises a press fit provided on the stopper.

5083 46. A cartridge according to claim 39, wherein the stopper is provided at the end of the insertion connection portion with a diaphragm disposed inclinedly with respect to the axis of the insertion connection portion.

9 47. A cartridge according to claim 39, wherein a sealing disc provided with sealing beads is disposed between the upper edge of the container and the inside of the stopper.

10 48. A cartridge according to claim 39, wherein the inside of the stopper is provided with a sealing lip.

11 / 49. A cartridge according to claim 39, wherein the stiff outer casing is diffusion tight, except for the opening thereof.

12 / 50. A cartridge according to claim 39, wherein the stiff outer casing is provided with a plurality of inwardly projecting projections.

13 / 51. A cartridge according to claim 39, wherein the stiff outer casing is a unitary piece.

A 14 / 52. A cartridge according to claim 39, wherein the stiff outer casing comprises two pieces.

15 / 53. A cartridge according to claim 39, wherein the stiff outer casing is a deep-drawn metal casing.

17 / 54. A cartridge according to claim 39, wherein the stiff outer casing is made of aluminum.

18 / 55. A cartridge according to claim 39, wherein the stiff outer casing comprises a plastic material.

19 / 56. A cartridge according to claim 39, wherein the stiff outer casing is a thermoplastic material.

sub
B4 57.

A cartridge according to claim 39, wherein the stiff outer casing is provided at its bottom with a projecting bead.

23 58.

A cartridge according to claim 39, wherein the stiff outer casing includes a recess in its bottom.

24 59.

A cartridge according to claim 38, wherein the stiff outer casing is provided within the recess with an opening whose diameter in the case of a circular cross-section is between 0.1 millimeter and 5 millimeters.

25 60.

A cartridge according to claim 38, wherein the stiff outer casing is provided within the recess with an insert including a micro-opening which communicates with the opening in the bottom of the stiff outer casing, and which in the case of a circular cross-section is of a diameter of between 10 μm and 500 μm and is of a length of between 100 μm and 5000 μm .

26 61.

A cartridge according to claim 60, wherein the insert is provided with a filter in front of the micro-opening.

14 62.

A cartridge according to claim 53, wherein the stiff outer casing is provided with at least one peripherally extending crease which embraces the stopper in force-locking and positively locking relationship.

56 63. A cartridge according to claim 56, wherein the stiff outer casing is connected to the stopper by means of a welded joint with merging of materials.

27 64. A cartridge according to claim 39, wherein the stiff outer casing is provided in its upper part with a peripherally extending groove which embraces the lower edge of the stopper.

sub 65. A cartridge according to claim 39, wherein the stiff outer casing is provided in its upper part with a flanged-over portion which embraces the upper edge of the stopper.

40 66. A cartridge according to claim 39, wherein the cartridge is sealed in the region of the stopper by a diffusion-tight sealing foil.

71 67. A cartridge according to claim 39, wherein the stiff outer casing is sealed on the outside of its bottom by a diffusion-tight sealing foil.

72 68. A cartridge according to claim 39, wherein provided in the central region of the sealing foil on the outside of the bottom of the stiff casing is a free space which is covered by the sealing foil.

21 69. A cartridge according to claim 57, wherein the cartridge can be pulled out of the dispensing device by means of a withdrawal aid which can be pushed under the projecting bead.

29/ 70. A cartridge according to claim ²⁷64, wherein the connection portion on the upper portion of the dispensing device is provided with snap hooks which engage into the peripherally extending groove in the upper part of the stiff outer casing after the cartridge has been pushed into the dispensing device.

sub 36 } 71. A releasable connection between a cartridge and a connection portion of a dispensing device, comprising:
a connection portion disposed on an upper portion of the dispensing device;
and
snap hooks provided on the connection portion which engage into a peripherally extending groove in a container which is stable in respect of shape, after the container has been pushed into the dispensing device.

37 72. A cartridge according to claim 67, wherein the inside of the bottom of the lower portion of the dispensing device is provided with a piercing device for the sealing foil which is disposed on the underside of the bottom of the stiff outer casing.

38 73. A cartridge according to claim 39 for an aqueous liquid, wherein the container and the stopper comprise polypropylene, further comprising a collapsible bag of polyethylene disposed in the container, wherein:

the stiff outer casing comprises a plastic material, preferably polypropylene;
the opening in the bottom of the stiff outer casing is a bore;

the insertion connection portion is closed at its end by a diaphragm inclined with respect to the axis of the insertion connection portion and the sealingly closing, centered guide means is a press fit and is connected by a snap connection to the container;

the cartridge is releasably connected to the connection portion by means of a plug connection, the releasable plug connection being a snap connection in which there are provided in the connection portion of the upper portion of the dispensing device snap hooks which engage into a peripherally extending groove in the upper region of the cartridge;

the bottom of the outer casing includes an inset with a micro-opening which communicates with a bore in the outer casing; and

the inside of the bottom of the push-on portion of the dispensing device is provided with a resilient piercing device for a sealing foil on the underside of the bottom of the casing.

31 74. A cartridge according to claim 39 for an alcoholic liquid, wherein the container and the stopper comprise polypropylene, further comprising a collapsible bag of polyethylene disposed in the container, wherein:

the stiff outer casing comprises a metal, preferably aluminum;

the stopper is closed at its end by a diaphragm which is inclined with respect to the axis of the insertion connection portion;

the sealingly closing, guide means is in the form of a press fit;

stopper is non-releasably connected by the outer casing to the container;

the insertion connection portion is closed at its end by a diaphragm inclined with respect to the axis of the insertion connection portion and the sealingly closing, centered guide means is a press fit and is connected by a snap connection to the container, and

the releasable plug connection between the cartridge and the connection portion of the dispensing device is in the form of a snap connection in which there are provided in the connection portion of the upper portion of the dispensing device snap hooks which engage into a peripherally extending groove in the upper region of the cartridge, and

the inside of the bottom of the push-on portion of the dispensing device is provided with a resilient piercing device for a sealing foil on the underside of the bottom of the casing.

³⁸
39 ~~75~~. A cartridge according to claim ~~74~~, wherein the liquid contains a pharmacologically active substance.

³⁴
35 ~~76~~. A cartridge according to claim ~~75~~, wherein the liquid contains a pharmacologically active substance.

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44 ~~77~~. A cartridge according to claim ~~39~~, wherein the liquid contains a pharmacologically active substance.

³⁸
40 ~~78~~. A cartridge according to claim ~~74~~ for a medical liquid wherein the medical liquid contains one or more of the active substances Berotec (Fenoterol hydrobromide); 1-(3,5-dihydroxy-phenyl)-2-[[1-(4-hydroxy-benzyl)-ethyl]-amino]-ethanol hydrobromide),

Atrovent (Ipratropium bromide), Berodual (combination of Fenoterol hydrobromide and Ipratropium bromide), Salbutamol, Salbutomal sulphate Combivent, Oxivent (Oxitropium bromide), Ba 679 (Tiotropium bromide), BEA 2108 (di-(2-thienyl)-glycolic acid tropenol ester), Flunisolid, Budesonid and Beclomethasone.

34 ~~79~~ ⁷⁹ A cartridge according to claim ~~73~~ ⁷⁹ for a medical liquid wherein the medical liquid contains one or more of the active substances Berotec (Fenoterol hydrobromide); 1-(3,5-dihydroxy-phenyl)-2-[[1-(4-hydroxy-benzyl)-ethyl]-amino]-ethanol hydrobromide), Atrovent (Ipratropium bromide), Berodual (combination of Fenoterol hydrobromide and Ipratropium bromide), Salbutamol, Salbutomal sulphate Combivent, Oxivent (Oxitropium bromide), Ba 679 (Tiotropium bromide), BEA 2108 (di-(2-thienyl)-glycolic acid tropenol ester), Flunisolid, Budesonid and Beclomethasone.

45 ~~80~~ ¹ A cartridge according to claim ~~39~~ ¹ for a medical liquid wherein the medical liquid contains one or more of the active substances Berotec (Fenoterol hydrobromide); 1-(3,5-dihydroxy-phenyl)-2-[[1-(4-hydroxy-benzyl)-ethyl]-amino]-ethanol hydrobromide), Atrovent (Ipratropium bromide), Berodual (combination of Fenoterol hydrobromide and Ipratropium bromide), Salbutamol, Salbutomal sulphate Combivent, Oxivent (Oxitropium bromide), Ba 679 (Tiotropium bromide), BEA 2108 (di-(2-thienyl)-glycolic acid tropenol ester), Flunisolid, Budesonid and Beclomethasone.